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OFFICIAL

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Ma Shipping

Application No.: 10/004,978

Filed: 12/3/2001

Title: Flame Retardant Resin Composition
and Molded Products Thereof

Attorney Docket No.: GEPL.P-080

Customer No.: 021121

Group Art Unit: 1711

Examiner: U. Rajguru

Confirmation No: 7848

Commissioner for Patents

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Alexandria, VA 22313-1450

RESPONSE TO OFFICE ACTION AND INTERVIEW SUMMARY


Dear Sir:

This is in response to the Office Action mailed January 27, 2004 for the above-captioned application. Reconsideration and further examination are respectfully requested.

Applicants thank Examiner Rajguru for taking the time to meet with their attorney concerning this case. This paper will serve as Applicants summary of that interview.

Claims 1-21 are pending in this application. Independent claim 1 is directed to a non-flammable resin composition that comprises a polycarbonate, a phosphoric ester that meets certain structural limitations, and an alkoxy-group containing organopolysiloxane that meets certain structural limitations. Claim 1 further recites limitations on the amounts of the phosphoric ester and the organopolysiloxane that are present within the composition.

I hereby certify that this paper and any attachments named herein are transmitted to the United States Patent and Trademark Office, Fax number: 703-872-9306 on April 27, 2004.



Marina T. Larson, PTO Reg. No. 32,038

April 27, 2004

Date of Signature

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The Examiner has rejected the claims of this application as obvious over various combinations of references. Common to each of these rejections is the combination of US Patent No. 6,184,312 (Yamamoto) and US Patent No. 5,658,974 (Fuhr). As characterized by the Examiner, the Yamamoto reference discloses a composition with all of the components of claim 1, except for the phosphoric ester (B). Fuhr is cited for a disclosure of flame proofed polycarbonate molding compositions that contain a phosphorous ester within the scope of the formula of claim 1. The Examiner argues that adding the phosphorous ester of Fuhr to the polycarbonate composition of Yamamoto would have been obvious. During the interview, Applicants attorney discussed with the Examiner the propriety of combining these references.

Yamamoto refers to a specific type of siloxane and chooses this siloxane to achieve both flame retardance and optical transparency. The siloxane of Fuhr is broader in scope than the specific siloxane of Yamamoto, and the specific examples do not meet the limitations of Yamamoto's specified siloxane. There is no teaching in Fuhr that the siloxanes used are effective as flame retardants on their own (indeed, the flame retardance and burning time of Comparative Examples 3-11 as shown in Table 3 are poor), nor is there a teaching that any of the Fuhr compositions have optical properties. In this regard, it should be noted that the list of products at Col. 9, lines 48-62 do not include mention of any articles that are optical components.

The examples in Fuhr show synergism between the siloxane's tested and the phosphoric esters tested. There is no mechanism offered for this synergism, however, and thus no way to predict whether this same type of synergism would be observed using a siloxane as taught by Yamamoto.

In order to reach the claimed invention from the references, a person skilled in the art would have to risk losing the beneficial optical qualities of the Yamamoto reference and the beneficial synergy of the components of the Fuhr reference. Neither of these is an obvious choice, and the outcome cannot be predicted. Applicants therefore submit that there is no motivation to combine the references, and that as such there is no *prima facie* case of obviousness.

During the interview, the properties of the compositions of the invention, as set forth in the Table on Page 32 were also discussed. As the Examiner correctly observed, formulating compositions of this type generally involves trade-offs where obtaining good properties of one type, such as flame retardance, leads to deterioration of other properties. In this case, it is important to note that the good flame retardance is achieved in the composition of the invention with limited loss of impact strength. For example, in the two comparative examples that achieved V-0 flame retardance rating and a short burn out time (Comp Examples 3 and 6), the Izod Impact resistance was low, i.e., 44 and 25, respectively. In contrast, all of the compositions in accordance with the invention, including the example in the Rule 132 declaration containing

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RDP as the phosphoric ester, had an Izod Impact Resistance of at least 50. Nothing in the art cited by the Examiner would suggest that the combination of the invention would lead to this improved balancing of properties. Indeed, neither of the references provide any information concerning impact resistance of the materials made. Thus, this beneficial and unpredictable property provides a further reason why a person skilled in the art would not consider the present invention to obvious.

For the foregoing reasons, Applicants submit that claim 1 and all of the claims dependent thereon are in form for allowance. Favorable reconsideration and allowance of all claims are respectfully urged.

Respectfully submitted,



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